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Abstract

A survey of literature pertinent to the field of aerial pickup has been made and a bibliography of references which were found is given.

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Introduction

A survey of literature pertaining to in-flight pickup has been made. The purpose of this review was to analyze previously existing schemes for use in the current feasibility study under Contract Nonr-1279(). In addition, information for the preliminary design of components for a specific system was collected.

General

The survey includes information gathered from the Pacific Aeronautical Library of the Institute of Aeronautical Sciences; the Aeronautical Library of the California Institute of Technology; the Technical Information Pilot Index of the Office of Naval Research, Pasadena Branch; and from an ASTIA search, which included literature catalogued at the ASTIA Document Service Center, Wright Field, the ASTIA Reference Center, Library of Congress, and the Technical Information Division, Library of Congress. Abstracts of approximately 5,000 documents were inspected for applicability to the pickup problem.

Captured German and Japanese technical documents, and published British Air Ministry documents were also investigated. Since the references to captured documents are often poor, the proper catalogue sequence number for the Catalogue of Aeronautical and Allied Technical Documents of the Air Materiel Command is given for each document listed.

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Although the literature search conducted was very extensive, it is realized that some material of interest is either unpublished or uncatalogued. Also in view of the classification of the current investigation, material searched has been of Confidential classification or below.

For convenience the bibliography has been divided into the following sections:

- A. Operational Descriptions
- B. Glider Pickup and Tow
- C. Search and Location
- D. Cable Form and Forces
- E. Stability of Towed Bodies
- F. Winches and Equipment
- G. Human Body Data
- H. Parachutes
- I. Physiology
- J. Miscellaneous

Summary

Very little information bearing directly on in-flight pickup of humans has been published. However, some information of a detailed technical nature exists which is applicable to the design and performance of components of aerial pickup systems.

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The effort of the United States in the field of human pickup has been the most extensive and has apparently been the only work which has resulted in successful operational systems. The systems developed in the past have been based on the standard All American Aircraft Company technique. British effort appears to have been sparse and no Japanese work in this field is evidenced. German experiments were preliminary and did not apparently progress beyond an early stage. However, objects up to 165 lbs. in weight were picked off the ground by a boom carrying aircraft, which hooked lines attached to a 100-foot tower. Use of a drag chute to improve trajectory of the object was investigated. Circling flight pickups in the P1 50 Storch (Liaison type craft), the FW 158 Weihe (Similar to Beechcraft JRB) were attempted. No details are available but such systems were abandoned due to the difficulty of flying in the fashion necessary to keep the end of a long line at a fixed point on the ground.

The United States, Britain, and Germany expended considerable effort in the pickup and tow of gliders, glide bombs, etc. and some applicable information is found in this work.

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